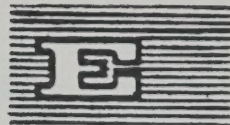


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REPORT OF THE EAST AFRICAN TRAINING COURSE
FOR BUILDING CONTRACTORS

(Four courses held in Ethiopia, Kenya, Uganda and Zambia
April - June 1968)

M68-1053

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I. INTRODUCTION

1. The eighth session of the United Nations Economic Commission for Africa adopted a resolution [157(VIII)] which, inter alia, endorsed the ECA work programme in housing, building and physical planning presented for the 1967-68 biennium. One project in the work programme was the organization of special training courses for building contractors. Under this authority, the ECA secretariat organized and directed in April-June 1968 a series of training courses for African building contractors in four East African countries: Ethiopia (23-30 April), Kenya (6-11 May), Uganda (3-8 June) and Zambia (15-24 May).
2. The World Health Organisation and the International Labour Organization (through its Regional Office for Africa) each provided a lecturer for the courses. One lecturer was recruited from Ethiopia and another from Israel. The services of several others, each of whom lectured in one host country, were provided by the Governments of Ethiopia, Kenya, Uganda and Zambia.
3. A total of 97 participants - all African - participated fully in the courses and received attendance certificates. Out of this number 58 were independent contractors or contracting personnel while the rest were public officials (from ministries of works, municipalities and government agencies) engaged in contracting activities or dealing with contractors. Annex 3 contains a list of participants.
4. The duration of the course was one full week of lectures in each country, with the exception of Zambia, where, upon the request of the Government, the course was prolonged to ten days.
5. The courses were welcomed and encouraged by the Governments, as all have recognized the need to develop local contractors' capacity to take a greater share in national economic activities.
6. These four courses were also a breakthrough in teaching the contracting profession, as there is very little experience in this field in Africa. The experience described in this report could serve as a basis for further contractors' courses in Africa and in other developing regions.

II. OBJECTIVES

7. Within the broad framework of the need to encourage African entrepreneurship in the contracting business, the courses were designed to attain the following objectives:

- (a) To enlarge the ranks of African contractors hitherto considered insignificant in number and capacity and handicapped by lack of adequate know-how and inability to compete with the enterprises owned by non-nationals.
- (b) To stimulate the national training agencies to undertake the training of nationals for participation in the contracting business, by identifying the group of existing or potential national contractors and by demonstrating the training possibilities in this field. (In some of the countries, such institutions already exist; in others they are being formed, or the function of training the contractors could fall within the province of an existing training unit.)
- (c) To stimulate the national authorities to reexamine the prevailing regulations governing contracting registration and tendering procedures. These regulations and procedures, inherited from pre-independence days, are often disadvantageous to small contractors - conditions of bonds, sureties and retention money - requiring monetary manipulations unfamiliar, if not impossible, to them.
- (d) To increase the knowledge of participants, enable them to strive for improvement of their practice, and encourage them to bid for larger tenders and to form larger units by showing through lectures and case studies the drawbacks of the too-small firm.
- (e) To encourage national contractors to form and develop contractors' associations or co-operatives, with governmental assistance to acquire the mechanical equipment needed for the contracting business on hire. This would prevent the small contractor being burdened with heavy investments or being exploited by equipment owners.

- (f) To check the suitability of the subjects proposed in the syllabus in relation to the level and requirements of participants, and the time allotted to the courses and to each of the subjects, for formulating appropriate future training courses to be held in the other African countries.

8. All of the above objectives could not be achieved fully in one effort, but attempt was made to cover them in the lectures and case studies, so that a good basis was formed for the national and public bodies in the countries where the courses were held to carry on the effort.

III. WEAK POINTS OF AFRICAN CONTRACTING ENTERPRISES

9. The weak points of the emerging African contracting enterprises, as inferred from previous knowledge and confirmed by the participants' contributions to discussions, are as follows:

- (a) Small capacities of the enterprises and their inability to tender on substantial contracts.
- (b) Inability to comply with the contracting registration and tendering procedures (partly the fault lies in the prevailing conservative regulations).
- (c) Unavailability of reliable estimators (in many cases, estimating is done by the client's quantity surveyors).
- (d) Lack of basic knowledge of management finance and almost complete absence of knowledge of banking practice.
- (e) Lack of planning in the overall enterprise activities, in sales, production and finance, as well as in the implementation of projects.
- (f) Lack of experience in the use of plant and equipment, hitherto unnecessary in the unsophisticated projects available to African contractors, but also unattainable by small contractors because of the relatively big investments needed - justified only when a constant and high production capacity is attained.
- (g) A tolerant approach to bad workmanship due to lack of skilled labour and proficient and responsible foremen, who should not only supervise the quality of work, but should also be able to serve as instructors.
- (h) Frequent absenteeism on building sites undermining all planning and productivity efforts.

IV. LECTURERS

10. In recruiting the lecturing team we had to bear in mind the character of contracting, a highly competitive and dynamic business. Any person managing to survive in this profession, even if his educational background is limited, has demonstrated certain qualities and abilities which can be acquired and enhanced by training.

11. Experience in many countries has shown that building contractors cannot be trained successfully by a purely academic lecturer or by a general management consultant. Therefore, ECA looked for lecturers who answered the following specifications:

- (a) Thorough academic knowledge of the subject.
- (b) Practical experience in contracting or in dealing with contractors.
- (c) Teaching experience with adults and flexibility, enabling quick adjustment to an unexpectedly high or low level of participants.
- (d) Knowledge of Africa and African contractors.

12. These four requirements and the short time available for recruitment limited the possibilities of locating suitable lecturers. Still, fortunately, people answering these specifications were found, and the success of the courses was assured.

13. It is recommended that in future courses these specifications should be used as guidelines.

V. PROGRAMME AND TIME ALLOTMENTS

14. The course programme had to answer its objectives and deal with the weak points of the emerging African contracting enterprises. There is very little experience in the world with systematic training of contractors. The few syllabi received from training institutions in developed countries did not meet the requirements laid down by ECA. Being designed for more sophisticated participants, they did not satisfactorily cover the basic aspects of business management and totally neglected the financial management of the contracting enterprises.

15. A comprehensive syllabus (annex 1) was therefore specially designed in the ECA secretariat to cover most of the facets of a contracting enterprise. The original course plan was expanded to include cost estimating and the financial side of contracting.

16. As the time available for each course was relatively short, the directing team was confronted by the dilemma of whether to give all the subjects some attention or be selective and concentrate on a few essential features. Both alternatives seemed unsatisfactory.

17. Knowing that such an effort could not be repeated frequently and that the greatest impact possible must be made in the short time available, a programme was decided upon which, while touching upon all aspects of the contracting business, would give about two-thirds of the available time to the following four main subjects:

- (a) Organization of the contracting enterprise.
- (b) Estimating cost and cost control.
- (c) Project planning and control.
- (d) Management of funds and finance.

18. The remaining time was distributed among the following:

- (e) Productive management.
- (f) Sanitation on site and sanitary installations.
- (g) Tendering procedures and regulations.
- (h) Safety regulations and accident prevention.

- (i) Maintenance of machines.
- (j) Feeder roads.
- (k) General meetings and discussions.

19. The actual time distribution varied from country to country for several reasons: differing levels of participants, changes in the local lectures and differing priorities.

20. In Ethiopia, where the course was held in the mornings and evenings, the total number of hours available worked out to 45. In Kenya, where the morning period was shorter (0900-1215), the course had to be confined to 40 hours, while in Uganda, where the course began early at 0800 and made it possible to have six lectures before lunch and three in the afternoon, the number of hours was 51. In Zambia, where the course was extended to ten days, 64 hours were given.

21. The following table analyses the distribution of lectures and cases into three groups: (a) the vital subjects (organization, planning, tendering, estimating and finance); (b) the auxiliary subjects (productivity, sanitation, safety, maintenance, personnel, etc.); (c) general subjects (opening and closing ceremonies, registration, films, discussion and summary). The timetables for the courses appear in Annex 2.

Distribution of course time
(Hours)

	Ethiopia	Kenya	Uganda	Zambia
Vital subjects	31	24	32	37
Auxiliary subjects	7	7	10	19
General subjects	<u>7</u>	<u>9</u>	<u>9</u>	<u>8</u>
Total	45	40	51	64

22. Reviewing the experience of the four courses, it can be observed that the programme proved itself to be most appropriate, as well as appealing. Although local adjustments will always be necessary, this general structure is recommended as a basis for the future contractors' courses to be directed by ECA.

VI. TREATMENT OF THE SUBJECTS

23. At first glance the subjects may seem to suit a general management approach, but experience has shown that the vital subjects, if not specially adapted to the problems of contracting and presented by lecturers with a contracting background, are liable to lose their appeal, bear a theoretical character and appear impractical to the participants.

24. This holds mainly for the vital subjects - organization, planning, costing, finance and estimating. The rest of the subjects, such as productivity, maintenance and safety, may be dealt with in a general way, although a lecturer from the profession who knows the mentality and language of contractors would achieve better results. The following is a brief summary of the subjects and how they were dealt with to comply with the objectives of the courses.

25. Organization - presented by Mr. Chanoch Baltsan (ECA).

This subject was explained using a case of a "one-man business" which grew into a "family enterprise". The lecturer, together with the participants, developed a list of functions which must be performed in any contracting enterprise. Then a logical distribution of functions was elaborated showing the flow of responsibilities and controls. It was in the context of this subject that the idea of forming larger enterprises was promoted, showing the constraints of the "one-man enterprise".

26. Planning - presented by Mr. Chanoch Baltsan (ECA).

Using a case of the implementation of a building contract, the lecturer stressed the necessity of systematic planning and control, showed the logical steps in planning and elaborated the appropriate techniques used in each stage.

27. The subject was presented in a simple way, employing the least complicated techniques, beginning with the collection of information, site layout principles and the progress chart. While dealing with the solutions in their simplest form the lecturer went on to explain the advanced concepts of network and critical path as well as on levelled use of production means to ensure low direct and indirect costs.

28. The lecturer was confronted with criticism from a few management experts in the host countries who questioned the appropriateness of explaining some of the advanced techniques of the contracting business to African contractors. But experience showed that these experts underestimated the quality and capability of existing contractors - some of the participants had considerable knowledge of and even practice in these techniques. It would have been frustrating to them to approach this subject using obsolete concepts and techniques. It is up to the lecturers to find the right level to communicate with the participants.

29. Presentation of network planning was also necessary to show where this technique could be applied with advantage in order to safeguard contractors from consultants who, being enthusiastic about such an effective management technique, might advise a contractor to use it even where it was not appropriate (a frequent experience in developed countries).

30. In Ethiopia, Mr. Schmocker of the Centre for Ethiopian Management (a joint Government-ILO project) lectured for four hours on practical network analysis.

31. The lectures on site organization were co-ordinated with an organized visit to a selected building site in order to give the subject the practical touch it deserves. In two countries the class visited African contractors' sites, and both the contractors were course participants.

32. Cost control - presented by Mr. Chanoch Baltsan (ECA).

While stressing the importance of knowing the unit cost of the various works, it was also shown that by making use of processed data flow techniques, at only small additional expense, it was possible to identify costs at their very origin.

33. Estimating - presented by Mr. Habte Georgis Indrias (Ethiopia).

The composition of cost estimating dealing with basic cases such as excavating, concreting and masonry. The exercises were based on prior estimation of machine cost or mortar cost to be later incorporated in the cost of concreting or masonry.

34. The intention was not to make estimators of the participants, but to give them a fair understanding of the composition of cost.

35. Finance - presented by Mr. Gedalya Doron (Israel).

This subject, seldom presented this way in such courses, was adapted to the peculiar problems of the contracting enterprise.

36. The lecturer presented the subject from the point of view of "funds flow" and managerial economics, a management approach instead of the more familiar "accounting approach", which was considered inappropriate by the directing team.

37. It was evident that the subject was completely new to all the participants, who were unfamiliar with most basic banking procedures such as procurement of loans and financing procedures. The participants also acquired a basic knowledge of methods of calculating depreciation, cost of plant and cash budgeting.

38. Since the level of participants varied from country to country, the lecturer varied his presentation of the subject to meet the specific requirements of each country.

39. The participants' enthusiastic response to this subject showed that it answered a definite need, and it is recommended to give it a larger share in future courses, bearing in mind its contribution to the objectives of the course in promoting African entrepreneurship.

40. Tendering procedures - presented by local experts in co-operation with Mr. Habte Georgis Indrias.

The aim of presenting this subject was to give participants knowledge and understanding of the prevailing regulations and the steps required for registration and eligibility to tender. This lecture, usually given by a senior official of the Ministry of Works, gave the participants an opportunity to question and criticize the prevailing machinery.

41. Safety regulations -- presented by local public officials
(usually the Inspector of Factories).

This lecture explained the regulations governing accident prevention, as well as the liabilities of the contractor towards his employees and third parties.

42. Productive management -- presented in Ethiopia, Kenya and Zambia by Mr. K. A. Gharney, ILO Senior Regional Officer, Regional Office for Africa.

Presented in Uganda by Mr. F. H. Ford, Chief of Project, Management Training and Advisory Centre.

The exposition of this subject was in three parts:

- (a) Employment opportunities in the construction industry, wages and incentives.
- (b) Building techniques.
- (c) Starting your own construction business.

43. To this item were linked the problems of a small enterprise and the formation of co-operatives as contracting companies, as well as government assistance to co-operatives for the purpose of acquiring machines for hire to members. This idea of co-operatives for machines was promoted throughout the course, as the directing team considered it a good solution to the problems of investment in machinery for small contractors.

44. The participants' reception was good. In Nairobi, the ILO lectures aroused enthusiasm amongst the contractors to organize themselves into contractors' co-operatives and, in partnership with the Government, create a plant pool to assist them in the execution of their building works. In Lusaka, the participants agreed among themselves to form a nucleus of a building contractors' association and, with the assistance of the Public Works Department, to invite all other registered contractors in the country to join the association.

45. Sanitation on site and sanitary installations.

- Presented by Mr. Max Roy (WHO Sanitary Engineer)

The purpose of this section was to broaden the contractors' knowledge about sanitary plumbing systems and installations so that they might exercise ~~more~~ effective control over the work of sub-~~contractors~~ and workmen in this particular field.

46. Generally speaking, the course participants displayed a great deal of interest in this subject and the response was encouraging. It is worth mentioning that the relationship between sanitary installations and health was of particular interest in each country visited.

47. For future reference it should be noted that, while the good ~~execution~~ of works is imperative, stress on the health aspects is equally important.

VII. THE WORKING PAPERS

48. As there was no ready-made material available for teaching contractors, special working papers were prepared for this course. Each lecturer prepared a paper for his subject. Six working papers were issued to participants during the course; they were not sent in advance.

49. The papers sometimes covered much more than was imparted during the lectures, and they were intended to serve as reference documents for participants' future use.

50. A brief description of the working papers follows.

51. EA COURSE/WP/1. "The Building Contracting Enterprise", prepared by Mr. Chanoch Baltzan, was the basic paper for the course. This paper provided general information about the contracting enterprise in 66 pages and eight illustrations, under the following headings:

Introduction

- Construction in the economy
- The contractor's responsibility
- Types of contracting organizations
- Types of tenders and contracts

The Contracting Enterprise

- The organization in a contracting firm
- Functions of a contracting enterprise
- The division of work
- The principal activities

Planning and Control of Construction Projects

- Introduction to work planning
- The principles governing the planning of the different resources
- Planning procedure
- Site organization (layout)
- Overall progress chart or timetable

An Introduction to Cost Control

- The need to know the cost
- Terminology
- "Catch" the cost at the expenditures outlets
- Cost control begins already at the cost estimating stage
- Making the best use of the existing flow of data on site
- The cost code
- New horizons

Efficient Use of Machinery

Bibliography

52. Two case studies were used in conjunction with this paper. Case 1, on "contracting organization", was "The story of John Omari and Sons, Contractors", in which a one-man contracting enterprise developed into a bigger family enterprise. This served as a basis for discussion of the division of work, and this discussion in turn provided the framework for the lectures on organization. Case 2 was a presentation of a contract for one villa-type house and a variation to 20 houses of the same type. This case served as a study for planning and site organization.

53. EA COURSE/WP/2. "Productive Management in the Construction Industry" was prepared by Mr. K. A. Chartey. This paper was divided into three parts. The first dealt with employment and wages, the second with construction techniques and productivity. The third part dealt with the problems of starting a new contracting business, and it was here that the author brought out the experience of Ghanaian contractors in forming plant pool co-operatives with governmental assistance. Appendix 1 gave a breakdown of the costing of a road works, an additional subject covered by the same lecturer. The other two appendixes dealt with a road contract and an example of a schedule showing the percentage progress completed for stages of constructing a building.

54. EA COURSE/WP/3. "Financial Management and Managerial Economics for Small Contractors" was prepared by Mr. G. Doron. The three chapters of this paper were distributed separately, so that for each lecture the participants had before them the section dealing with the topic under discussion.

55. Chapter A covered:

- Cost analysis and classification
- Breakeven point calculation (volume of work needed)
- Cost involved in owning and operating machinery.

Chapter B covered:

- The income statement
- Cash flow in a construction company
- Cash budgeting
- Working capital
- The balance sheet.

Chapter C covered:

- Bank services
- Accounts receivable
- Accounts payable
- Inventories
- Investment evaluation.

56. EA COURSE/WP/4. "Estimating" was prepared by Mr. Habte Georgis Indrias.

The paper had the following divisions:

- Estimating
- Compiling prices
- Analysis and examples of pricing preliminaries
- Contract documents
- Types of contracts
- Forms of tenders
- Examples.

Two addenda, affecting the final section, were prepared for use in Kenya, Uganda and Zambia. The examples were simplified and the currency was changed from dollars to shillings for Kenya and Uganda, and to kwacha and ngwee for Zambia.

57. EA COURSE/WP/5. "Sanitary Installations" was prepared by Mr. Max Roy.

The following items were supplemented by six working drawings.

- Definitions
- Essential parts of sanitary plumbing
- Principles
- Pipe sizes
- Types of installation.

58. EA COURSE/WP/6. "Sanitation on Site" was also prepared by Mr. Max Roy.

This short paper dealt with water supply, drainage, latrine construction, disposal of refuse, food control and rat control.

59. Advisory leaflets. In addition to the above specially prepared papers, offset copies of the following Advisory Leaflets issued by the British Ministry of Public Building and Works were distributed to participants (with permission of the British Embassy in Addis Ababa).

- No. 14. Modern Site Organization No. 2
- No. 13. The Principles of Costing
- No. 22. Care of Small Plant and Hand Tools
- No. 33. How to Keep Machines Running Smoothly
- No. 36. Hints on Use and Erection of Metal Scaffolding.

VIII. ORGANIZATION AND ADMINISTRATIVE ARRANGEMENTS

Liaison officers

60. In the initial letter to prospective host governments, the appointment of a liaison officer was requested. The liaison officer was to be responsible for recruitment of participants, acquisition of classroom facilities, and handling other organizational details. Liaison officers or agencies were appointed by all governments who accepted the course.

61. In Ethiopia, Mr. X. de Laforcade of the Ministry of Public Works was appointed liaison officer. The Kenya National Construction Corporation Limited served as liaison agency, and correspondence was conducted with Mr. J. Fjellestad, Senior Building Supervisor. In Uganda, the Management Training and Advisory Centre (an ILO-aided project) was appointed to handle all liaison activities and arrange classroom facilities for the course. In Zambia, Mr. E. F. Ball of the Ministry of Works and Housing was liaison officer.

62. Close contact was maintained through correspondence with all liaison officers prior to the course. During the courses all liaison officers worked diligently to meet the needs of the course. This co-operation was invaluable, especially since the directing team reached each country (except Ethiopia) only a short time before the course opened (in Zambia this time was two days) and without good arrangements by the liaison officers, it would have been impossible to maintain the tight schedule without sacrificing part of the course.

Classroom facilities

63. In each country, classroom facilities were quite satisfactory. The courses were held in the following places:

- Addis Ababa: The Ethio-Swedish Institute of Building Technology.
- Nairobi: Ministry of Works Staff Training Centre.
- Kampala: Management Training and Advisory Centre.
- Lusaka: Public Works Training School.

Administrative arrangements

64. An administrative assistant from the ECA secretariat accompanied the directing team. In addition to general secretarial work for the course, her main duties were the processing, dispatching and distribution of course material, registration and press releases, arranging air travel, checking attendance and preparing certificates, and handling participants' subsistence payments (in Lusaka, where the Government issued travel vouchers to provincial participants and housed them in a Government hostel, payment was made to the Government rather than to participants).

IX. RECRUITMENT OF PARTICIPANTS

65. The aim of the course was to reach the African nationals who, in course of time, might be in a position to become independent contractors and be able to compete with the small and medium expatriate enterprises.

66. With this aim in mind, host Governments were requested to nominate participants who were already in the contracting business or who could be prospective contractors, from the following groups:

- (a) Independent contractors and their high-ranking staff.
- (b) High-ranking African personnel in expatriate firms.
- (c) Governmental officials engaged in the implementation of construction works.
- (d) Governmental officials supervising or dealing with contractors.

67. While the course was welcomed by the host Governments, some limiting factors were presented when the recruitment stage was reached. These limiting factors were:

- (a) Non-availability of African contractors (or very small numbers of African contractors).
- (b) It was thought that the level of the existing African contractors was not suitable to absorb the programme.
- (c) Contractors would have no time to leave their business unattended for a whole week to participate in a course.

In one case, it was suggested that the African contractors would be ripe for the proposed course only after two years.

68. With the objective of the ECA resolution in mind, and in the firm belief that action must be taken to encourage African entrepreneurship, the directing team were prompt in answering all queries and remarks, indicating to the liaison officers where to look for participants and alleviating their concern about the level of the programme. Moreover, a Regional Adviser from the Housing Section, who was on a mission in Swaziland and Lesotho, was

delegated to visit all the countries concerned on his way back to Addis Ababa to promote arrangements for the course (mainly recruitment).

69. As a result of these efforts, four countries (Ethiopia, Kenya, Uganda and Zambia) agreed to host the course.

70. The recruitment of participants took different shapes in the various countries.

71. In Ethiopia, where recruitment began far in advance of the course, over 60 applications were received. The course was attended fully by 35 participants out of whom 13 were contractors and 22 were public servants dealing with contracting. Among the latter were officials of agencies such as the Awash Valley Authority, the Imperial Highway Authority, the Light and Power Authority, and various others. All participants came from the capital. It appears that no special effort was made to recruit participants from the provinces.

72. In Kenya, the 22 participants were mostly contractors; only five were public servants, and 17 of the participants came from the provinces.

73. In Zambia, ~~only 14 participants reached the final stage.~~ All of them were from the contracting field and no public officials attended. Most of the participants came from the provinces, seven were members of workers' contracting co-operatives (which called for some adjustment in the lectures to fit the needs of co-operatives).

74. In Uganda, where the Management Training and Advisory Centre was entrusted by the Government with recruitment and provision of facilities, 26 participants completed the course. Fifteen were contractors. Here the recruitment began with an announcement in the newspaper, and the fact that the directing team arrived several days before the course started gave the opportunity to meet candidates and continue to promote information through the press, radio and television.

75. The following table summarizes the information about participants.

Contractors' course participants

Country	Number who completed course	of which		Residents of		Education			
		Contractors	Public officials	Capital	Provinces	Primary	Trade	Secondary	University
Ethiopia	35	13	22	35	0	2	2	1	22
Kenya	22	17	5	7	15	2	11	7	2
Uganda	26	15	11	12	14	1	9	11	5
Zambia	14	14	0	4	10	4	9	1	0

Conclusions for the future

76. When planning future courses, the following considerations should be borne in mind:

- (a) Information regarding the non-existence of African contractors, or their very small numbers, or their low level, should not discourage future courses. The project officer or the course director should be sent to the host countries early to direct and encourage recruitment and formulate recruitment policies.
- (b) Recruitment should begin long before the projected date of the course (two to three months).
- (c) Special effort should be directed to enlist provincial participation.
- (d) The highest level should be aimed at, leaving the low level to the local institutions.
- (e) Effort should be made to recruit Africans working in expatriate enterprises.

X. DURATION OF THE COURSE

77. It is the conviction of the directing team, based on the experience of these four courses, that the duration of one week (six working days) is most appropriate.

78. Several participants and some public officials, however, stated that future courses should last longer, say, two weeks. The recommendation of the directing team is based on the following considerations:

- (a) This type of course is not a school and its objectives are limited. It is not intended to replace systematic basic learning which should deal in great detail with selected topics over a longer period.
- (b) Such courses are aimed at contractors who have great responsibilities and for whom it is quite an effort to be away from work for a full week. Prolongation of the course for more than one week might discourage many participants most in need of the course.
- (c) The need to recruit highly proficient lecturers has been explained as a must for such courses. This type of lecturer is quite hard to find and hold for a long period of time to run prolonged courses in a series.
- (d) The impact of the courses on the participants and on public opinion arises from the concentrated effort and the continuous tension which could hardly be maintained longer than one week. Extension of a course to a longer period would ease the tension which is necessary for success, and might cause setbacks by sharpening awareness of the participants' differing levels which are not so apparent in a one-week course.

XI. OPENING AND CLOSING CERIMONIES

79. In each country, every effort was made to have formal opening and closing ceremonies for the course, attended by senior Government and United Nations officials. This was not so much to give publicity to this United Nations training activity, as to arouse public interest in the problem and to create a dignified background for the participants' achievements and to give added value to the United Nations certificates of attendance which they received upon completion of the course.

80. In Ethiopia, the course was opened by His Excellency Ato Mulugeta Sine-Giorgis, Vice Minister of the Ministry of Public Works, and by Mr. Y. S. Pandit, Acting Director of the ECA Industry and Housing Division. The closing ceremony was addressed by Ato Berhanu Kidanu, Chief Engineer of the Ministry of Public Works.

81. In Kenya, the course was opened and closed by Mr. Robert Ouko, Permanent Secretary of the Ministry of Works. The United Nations Development Programme was represented at the opening ceremony by Mr. Karl Wolff, Deputy Resident Representative; at the closing ceremony, Miss Cecile Davis, Assistant Resident Representative, presented the certificates of attendance.

82. In Zambia, only one ceremony was held, and that was at the close of the course. The Parliamentary Secretary of the Ministry of Works and Housing, Mr. Mwale, addressed the participants and presented certificates.

83. In Uganda, the opening ceremony was addressed by the Honourable Shaban Nkutu, Minister of Works, Communications and Housing. Mr. B. M. Kalali, Assistant Chief Engineer of the Ministry of Works, Communications and Housing, addressed the closing ceremony. It was not possible to secure representation from the United Nations Development Programme at either ceremony.

84. Newspaper and television reporters attended all ceremonies and gave very positive coverage to the course.

XII. STUDENTS' EVALUATION OF THE COURSE

85. It is recognized that final evaluation of such a course can come only from the subsequent performance of those who participated in the course. Nevertheless, it was important to ascertain their immediate reactions. A questionnaire, which participants were asked to complete anonymously, was distributed on the last day of each course.

86. In Ethiopia, 27 (out of 35) questionnaires were returned. In Kenya and Zambia, all participants returned their questionnaires. In Uganda, 23 out of 26 were returned.

87. The following questions were asked:

- (1) In general, have you gained knowledge from this course?
- (2) Please state the field (or fields) in which you have increased your knowledge.
- (3) What subjects do you believe should be broadened and what shortened?
- (4) Please state your general opinion on the way the course was conducted. What did you think about the lectures, the cases presented, the discussion? Comment on whether each phase of the course was satisfactory or unsatisfactory to you.
- (5) Do you think you will use in your work some of the techniques or other things which you learned in this course? Please specify.
- (6) Do you have any suggestions which might improve future courses of this type?
- (7) Do you believe you could benefit from further courses on more advanced subjects? What subjects or special items do you think should be emphasized?

88. In general, the comments were very complimentary. It was stressed to participants that their honest opinions were wanted, including criticisms, to assist in the structuring of future courses. The comments are dealt with in the following paragraphs.

89. Question 1. All participants in all countries replied that they had gained knowledge from the course.

90. Question 2. This question elicited a variety of answers, as shown in the following table.

Fields in which participants noted an increase in knowledge[¶]

Field	<u>Number of participants mentioning subject</u>			
	Ethiopia	Kenya	Uganda	Zambia
Contractor's organization	10	12	6	8
Planning	23	14	23	12
Finance	21	18	19	7
Estimating	16	16	16	10
Maintenance & storekeeping	-	5	9	Not taught
Costing	13	12	11	7
Sanitary installations	9	7	8	4
Productivity	14	13	10	7
Safety	Not taught	-	4	3

¶ Where participants stated "all fields", each item has been increased by one.

91. Question 3. Several answers to this question were unclear, as many students merely listed subjects without indicating whether they believed the subjects should be broadened or shortened. Such inconclusive answers have been omitted from the following table.

Subjects which participants thought should be broadened or shortened

Subject	<u>Ethiopia</u>		<u>Kenya</u>		<u>Uganda</u>		<u>Zambia</u>	
	Broaden	Shorten	Broaden	Shorten	Broaden	Shorten	Broaden	Shorten
All subjects	5	-	8	-	5	-	-	-
No subjects	2		2				2	
Contractor's organization	7	1	1	-	1	1	2	-
Planning	15	-	3	-	7	-	5	-
Finance	12	-	7	-	11	-	6	-
Estimating	7	-	4	-	7	-	6	-
Costing	4	-	-	-	8	-	2	2
Sanitary inst.	3	1	5	-	4	1	2	1
Productivity	3	1	2	-	2	1	2	-
Safety	-	-	-	-	1	2	-	3
Tendering	1	1	1	-	1	1	1	1
Maintenance	2	1	-	-	1	4	-	-
Personnel	Not taught		Not taught		1	1	-	1
Films	-	-	-	-	1	1	2	1

92. Question 4. Answers to this question were almost uniformly positive.

One sample answer from each country is given below:

Ethiopia: "I really admire the idea and thanks to the one who organized this course and although the time for the lectures and length of the course was short, in my opinion it was satisfactory as a whole."

Kenya: "The course was very nice and interested. The lectures was presented willingly that everybody could understand what was going on. Each phase of the course was quite satisfactory to me."

Uganda: "The lectures were properly constructed in a good systematic way showing step by step of building industry. As you cannot roof before the foundation and walling, these lectures were very constructive and the discussions and practical experiences presented were very satisfactory and I would suggest that in future the training be made longer. The papers given out were very useful indeed."

Zambia: "My opinion on the way the course was conducted was quite good and if the course took us a month or more we would have gained more knowledge. The lecturers were quite good and understandable. The course was very satisfactory. I wish if the Public Works Department could be arrange more courses to improve our living."

93. Question 5. Representative comments from each country are reproduced below:

- Ethiopia: "Although I am not a contractor at present I shall use some of the techniques in my work as I am a Government employee of the Ministry of Public Works. I may use, for example, planning, site organization and cost control."
"Yes, I hope that I will use some of the techniques I learned from the course out of which are the network planning system, productive management in construction and investment evaluation. These are the subjects I have more benefited from, whereas for the rest I have been using them in the past, but now I shall improve on them."
- Kenya: "I believe that from now onwards, I have had a foundation of what to do in future."
- Uganda: "In this course I have learned some techniques which I did not know before. These are indeed very important and I shall put them in practice. Besides that, my knowledge in the building management has been greatly advanced by this course and I think this will help me and my staff to carry out more successful projects in future."
- Zambia: "Yes I shall. I shall by all means try to teach members of my co-operative the site organization and planning of starting a new contract, in theory and practice, as soon as I arrive."

94. Question 6. In answering this question, almost all participants suggested that future courses should last longer, or suggested addition of new subjects and items (i.e. lengthening time for discussions) which would require extending the course's duration. Representative statements:

- Ethiopia: "This course is first of its kind conducted in Addis Ababa and it is very important to continue such course in the future. The Ministry of Public Works should organize such seminar and invite experts from ECA and other organizations who are willing to give lectures on the subjects of building constructions."
- Kenya: "Yes, the course should be broadened to be more technical and include actual construction methods."

Uganda: "The class should be divided into 2 groups: (1) Consisting of those with technical (building) knowledge. (2) Consisting of those with no technical (building) knowledge. And have advance course for group (1), elementary course for group (2).

Zambia: "I hope this is my biggest concern, only that I have no power. If money was not the problem in Zambia, I would say our Government could immediately start establishing provincial centres, where we can be able to attend these types of courses."

95. Question 7. The following table gives a breakdown of the answers to this question.

Subjects desired for future courses - more advanced or new

Subject	Ethiopia	Kenya	Uganda	Zambia
All subjects in this course	3	6	3	-
Contractor's organization	4	1	1	1
Planning	15	5	16	7
Finance	17	6	14	10
Estimating	5	6	10	7
Costing	7	2	10	4
Sanitary installations	3	5	5	1
Productivity	8	3	3	5
Safety	-	-	1	1
Tendering procedures	1	-	-	6
Maintenance and storekeeping	-	-	-	1
<u>New subjects</u>				
Low-cost housing	2	-	-	-
Human relations	1	-	-	-
Legal aspects of construction	2	-	-	-
Construction projects other than buildings (mainly roads)	2	3	-	-

XIII. SUMMARY OF RECOMMENDATIONS

96. The directing team recommends:

- (a) That this course, with suitable adaptations, should be conducted in the other African countries, preferably in series of three or four national courses.
- (b) That the course programme established for the East African series be maintained without major changes, as this has proved effective and has demonstrated its appeal to participants.
- (c) That the duration of the course should be one full concentrated week in each country, and should allow the directing team to reach each country at least 4-5 days before the course begins.
- (d) That in recruiting lecturers for future courses, the following specifications be maintained:
 - (i) Thorough knowledge of the subject to be taught.
 - (ii) Practical experience in contracting and with contractors.
 - (iii) Experience in teaching adults.
 - (iv) Knowledge of Africa and African contractors.
- (e) That an administrative assistant from the ECA secretariat be part of the directing team for any future series of courses.
- (f) That in recruiting participants, the following points be borne in mind:
 - (i) Nominations by the liaison officer (or agency) should not be the sole method of recruitment.
 - (ii) Government liaison officers should be requested to begin their recruitment efforts through announcements in newspapers, radio and television, so that prospective participants may apply in writing to the liaison officer. Selections may be made, on the basis of applicants' understanding of the language in which the course will be conducted and involvement in the contracting profession.

- (iii) It is advisable to send an ECA staff member (preferably the project officer or course director or, if this is impossible, a staff member fully conversant with the aims of the course) to the host countries, well in advance of the course, especially if correspondence has indicated that participants are hard to locate. This person should actively assist the government liaison officer in locating and selecting potential candidates.
- (iv) In more developed countries, ECA should aim at training the highest level of participants, leaving the lower levels, who require more extensive training, to the national training agencies.

ANNEX I

SYLLABUS

Note: The list covers most of the items required in contracting. However, a more detailed syllabus, and the time to be assigned for each of the items, will be determined by the course director, in co-ordination with the nominated liaison officer for each country, depending on the level of the participants and the priorities given to the subjects in each country, as well as number of hours available.

1. The role of construction in the national economy and the contractor's role in the construction industry

- The construction "project-cycle" and its participants: the client, the architect, the clerk of works, the quantity surveyor, the supplier, the subcontractor, the user, etc.

2. Organization of the contracting enterprise

- The functions to be performed, the functionaries, the organization charts.

3. The legal aspects of a contracting enterprise

- The types of organization: sole proprietor, partnership or corporation.
- The types of contracts and tenders: "Quotation", "Labour only", "Lump Sum", "Bill of quantities", and others.
- The contract documents: "Conditions of contract", "Specifications", "Bills of quantities", plans, "the daily construction field report", etc.
- Bonds, securities, insurance: surety bonds, performance bonds, payments bonds, workman's compensations, public liability and types of insurance.
- Claims for deviations, contingencies, guarding against penalties.
- Contractors responsibilities: proficiency, safety, business reliability.

4. The pre-contract phase

- Estimating the cost:

The general structure of cost composition.

Some elements of quantity surveying.

Selected cost examples of building elements.

Planning the system as a base for estimating - the impact of technological alternatives or production techniques on cost.

- Submitting the tender.

Some common pitfalls.

5. The contract in implementation

- Planning and follow-up techniques:

Critical path planning.

The bar chart and other planning tools.

- Planning and implementation of reporting:

for evaluating performance and "cost control"

for preparing the bills.

- Site organization (including a visit to a selected site).

- Carrying out the work proficiently.

6. Successful use of the production means

- The employment of labour:

Planning the gangs works, and selecting repetitive operations.

Wages, piece-work and incentives.

- The economic use of building materials and components:

Compliance with specifications (the economic view).

Planning the internal transport and the storage facilities.

Reliability of suppliers.

- The efficient use of machines and equipment:
 - The cost elements.
 - Planning the employment of machines.
 - The maintenance.
- The co-ordination of sub-contract work.
- Saving on "overheads".

7. The financial and the business aspects

- Volume of work - the minimum required volume.
- Financing - sources, procedures and policies.
- Investments - in plant and in "know-how".
- Working capital.
- Cash flow, planning and follow-up.

Chanoch Baltsan
29 December 1967

ANNEX II

TIMETABLES

1. Addis Ababa, 23-30 April

Time	Tuesday 23/4	Wednesday 24/4	Thursday 25/4	Friday 26/4	Saturday 27/4	Monday 29/4	Tuesday 30/4
0900-0945	Opening session	Planning and control of construction projects (B)	Productive management in construction (G)	Estimating (H)	Network planning (S)	Network planning (S)	-
0950-1030	Organization of the contracting enterprise (B)	" (B)	" (B)	" (G)	" (H)	" (S)	-
1100-1140	" (B)	" (B)	" (B)	" (G)	" (H)	" (S)	-
1140-1220	Contract documents of tenders (H)	Estimating (H)	Cost control (B)	Visit to site (B)	Investment evaluation (D)	Plumbing systems and plans (R)	-
1220-1300	Introduction to estimating (H)	Estimating (H)	" (B)	Visit to site (B)	Payables and inventory management (D)	Sanitation practice on site (R)	-
1830-1915	Cost analysis and classification (D)	Cash flow and cash budgeting (D)	Meeting with Cost Experts (D)	Site organization (B)	-	-	Summary discussions
1915-2000	Breakeven point calculation (D)	Working capital (D)	Discussion on cost reduction and cost control	Estimating (G) (H)	-	-	Closing session
2000-2100	Cost calculation (D)	Film	"	Machines and maintenance (S) (B)	-	-	-

Lecturers: Mr. Baltzan (B)

Mr. Habte-Georgis Indrias (H)

Mr. Doron (D)

Mr. Charney (C)

Mr. Schmocker (S)

Mr. Roy (R)

2. Nairobi, 6-11 May

Time	Monday 6/5	Tuesday 7/5	Wednesday 8/5	Thursday 9/5	Friday 10/5	Saturday 11/5
0900-0945	-	Finance (D)	Planning (B)	Estimating (H)	Productivity (G)	Reserved
0950-1030	-	Finance (D)	Estimating (H)	Estimating (H)	Productivity (G)	Closing discussion
1100-1140	Registration	Estimating (H)	Estimating (H)	Costing (B)	Productivity (G)	Closing discussion
1140-1215	Contractors organization (B)	Estimating (H)	Estimating (H)	Visit to site	Safety (E)	Closing ceremony
LUNCH						
1400-1445	Official opening ceremony (PSM)	Planning (B)	Finance (D)	Site organization (B)	Sanitary installations (R)	
1445-1530	Contractor's organization (B)	Planning (B)	Finance (D)	Finance (D)	Sanitary installations (R)	
1540-1630	Local tendering procedure (K)	Planning (B)	Finance (D)	Finance (D)	Sanitary installations (R)	
Time to be announced			Films			

<u>Lecturers:</u>	Mr. C. Baltzan (B)	<u>Opening:</u>	Mr. R. J. Ouko
	Mr. G. Doron (D)		Permanent Secretary for Works (PSW)
	Mr. Habte Georgis Indrias (H)		
	Mr. K. Charthey (G)		
	Mr. M. M. Roy (R)		
	Mr. K. J. Ball (K)		
	Mr. E. R. Davies (E)		

3. Kampala, 3-8 June

Time	Monday 3/6	Tuesday 4/6	Wednesday 5/6	Thursday 6/6	Friday 7/6	Saturday 8/6
0800-0840	Registration	Local tendering procedures (BAR)	Estimating (E)	Sanitary installations (R)	Estimating (E)	Safety (P)
0840-0920	Opening ceremony (0900)	Local tendering procedures (BAR)	Estimating (E)	Sanitary installations (R)	Estimating (E)	Safety (P)
0920-1000	Contractor's organization (B)	Estimating (H)	Estimating (H)	Sanitary installations (R)	Estimating (H)	Safety (P)
1000-1100	Planning (B)	Estimating (H)	Finance (D)	Site organization (E)	Costing (B)	Closing discussion
1100-1150	Planning (B)	Finance (D)	Finance (D)	Visit to site (B)	Costing (B)	Closing ceremony
1150-1230	Planning (B)	Finance (D)	Finance (D)	Visit to site (B)	Costing (B)	Closing ceremony
-LUNCH-						
1400-1440	Finance (D)	Planning (B)	Maintenance (C)	Site organization (B)	Films	-
1440-1520	Finance (D)	Planning (B)	Maintenance & storekeeping (C)	Productivity (F)	Films	-
1540-1620	Finance (D)	Planning (B)	Personnel (K)	Productivity (F)	Films	-

Lecturers:

Mr. Baltzan (B)
Mr. Doron (D)
Mr. Barnes (BAR)
Mr. Habte Georgis Indrias (H)
Mr. Christie (C)
Mr. Keenahan (K)
Mr. Ford (F)
Mr. Roy (R)
Mr. Pownell (P)

Tea breaks: 1000-1030
and
1520-1540

4. Lusaka, 15-24 May

Friday 17/5	Saturday 18/5	Monday 20/5	Tuesday 21/5	Wednesday 22/5	Thursday 23/5	Friday 24/5
Planning (B)	Safety (F)	Productivity (G)	Finance (D)	Costing (B)	Sanitary in-stallations (R)	Sanitary in-stallations (R)
Planning (B)	Safety (F)	Productivity (G)	Finance (D)	Costing (B)	Sanitary in-stallations (R)	Sanitary in-stallations (R)
Contract documents (H)	Safety (F)	Plant pool co-operatives (G)	Site organization (B)	Estimating (H)	Sanitary in-stallations (R)	Sanitary in-stallations (R)
Estimating (H)	Productivity (G)	Planning (B)	Visit to site (B)	Estimating (H)	Personnel promotion (P)	Personnel promotion (P)
Estimating (H)	Productivity (G)	Planning (B)	Visit to site (B)	Estimating (H)	Personnel promotion (P)	Personnel promotion (P)
Productivity (G)	-	Estimating (H)	Site organization (B)	Finance (D)	Films	Closing ceremony
Productivity (G)	-	Estimating (H)	Finance (D)	Finance (D)	Films	Closing ceremony
Feeder road (G)	-	Estimating (H)	Finance (D)	Finance (D)	Films	-

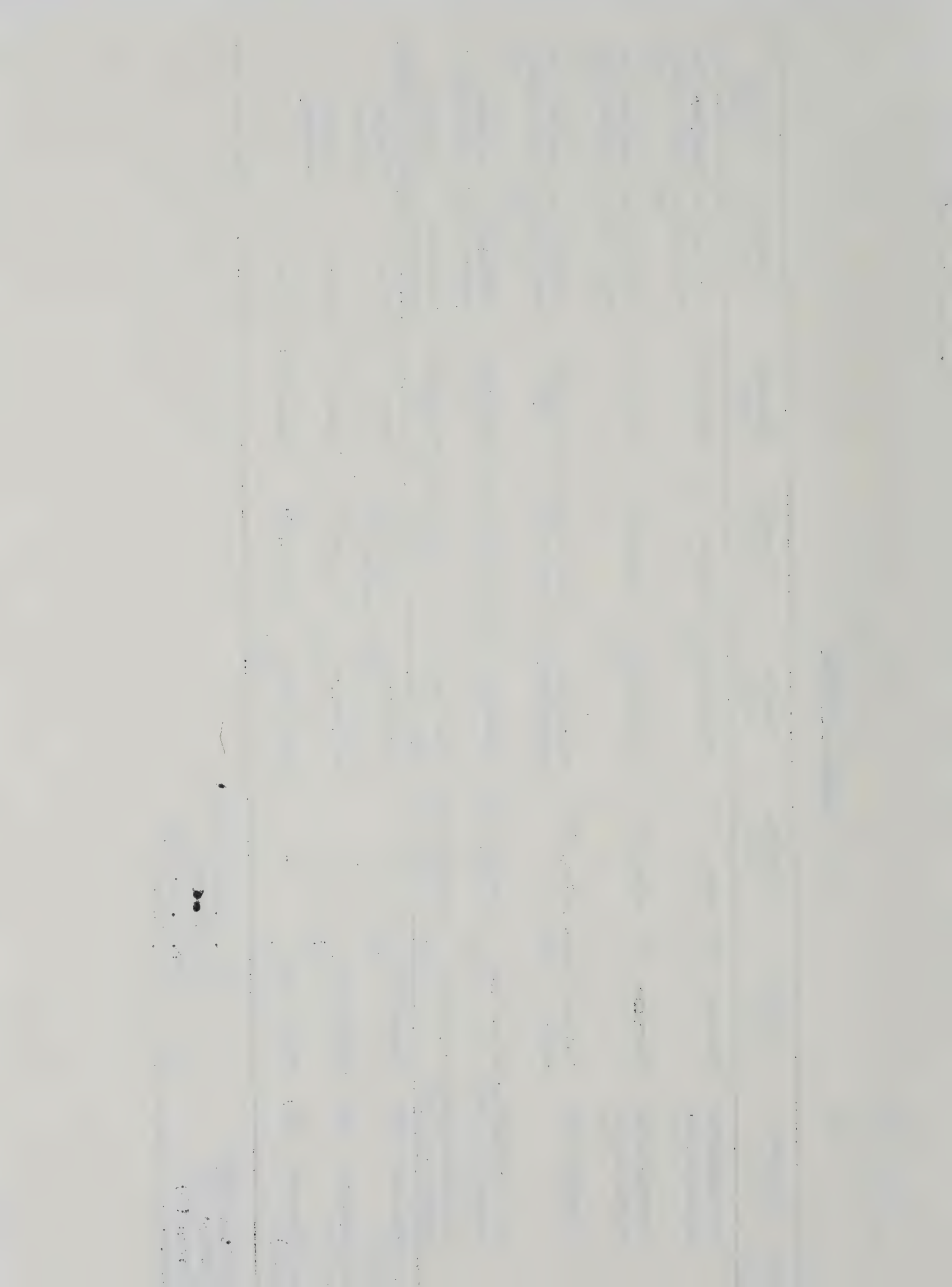
Mr. K. Gharthey (G)

Mr. Ford (F)

Mr. M. Roy (R)

Mr. Putta (P)

H)



ANNEX III

LIST OF PARTICIPANTS

Ethiopia

1. Ato Abdoul Hakim Mohamed Kemal
Owner, Contracting firm
2. Ato Abraham Berhane
Building Supervisor
Geo. Luigi Varnero, General Contractor
3. Ato Assefa Tessema
Municipality of Addis Ababa
4. Ato Ayele Habtemichael
Engineer
Tsegaye Belaineh Gen. Con.
5. Ato Bekele Gabre-Mariam
Assistant Chief City Engineer
Municipality of Addis Ababa
6. Ato Belew Kassa
Civil Engineer
Awash Valley Authority
7. Ato Berhe Negash
Owner, Contracting Firm
8. Ato Dawit Belatchew
Design Section Chief
Imperial Board of Telecommunications
Building Branch
9. Ato Debru Workneh
Engineer
Ministry of Interior, Municipality Department
10. Ato Demissie Abebe
Ministry of Community Development
11. Ato Enlaelu Worade
Chief Engineer
Imperial Body Guard
12. Ato Ferdu Zewedie
Engineer
Tsegaye Belaineh General Contractors

Ethiopia (Cont'd)

13. Ato Getahun Zelleke
Chief Price Controller
Ministry of Public Works
14. Ato Girma Wolde Amanuel
15. Ato Haile-Mariam Gebeyehu
Manager
Haile-Mariam Gebeyehu, Contractor
16. Ato Hailu Wakjira
Assistant Construction Engineer
Imperial Highway Authority
17. Ato Josphe Tecle Mariam
Owner
Joseph Tecle Mariam, Contractor
18. Ato Kabede Wondmagegnehu
Building Engineer
Imperial Board of Telecommunications
19. Ato Kebede Mulatu
Owner
Kebede Mulatu & Angelini Roberto
20. Ato Kefle Belaineh
Owner
Kefle Belaineh, Contractor
21. Major Mamo Woldemariam
Construction Engineer
Imperial Ethiopian Air Force
22. Ato Mebrahtu G/Kidan
Head of Technical Division
Marine Department
23. Ato Mesfin Gebeyehu
Engineer
Ministry of Education
24. Ato Mohammed Youssouf
Assistant Director, Physical Plant
Haile Selassie I University
25. Ato Mulugeta Kibre Semassie
Assistant Architect, Building Inspector and Quantity Surveyor
Architects Department
Ministry of Public Works

Ethiopia (Cont'd)

26. Ato. Seyoum Ambaye
Chief of Technical Work
Abdul Wali Abdul Muni, Contractor
27. Ato Taddesse Chekol
Ethio-Swedish Institute of Building Technology
28. Ato Tekaligne Ballamie
Deputy Chief Office Engineer
Ministry of Public Works
29. Ato Telahun Ayele
30. Ato Tena Gashaw Mengistu
Construction Engineer
Civil Aviation Administration
31. Captain Tibebe Menkir
Engineer
Army Corps of Engineers
32. Ato Tilahun Birru
Legal Adviser
Ministry of Public Works
33. Ato Tsegaye Belaineh
Owner
Tsegaye Belaineh General Contractors
34. Ato Tsehay Gabre Mariam
Building Supervisor
Ministry of Agriculture
35. Ato Wond Wassen Sahale
Civil Engineer
Ethiopian Electric Light and Power Authority

Kenya

1. Mr. P. S. Amos
Amos & Sons Limited
P.O. Box 11140
Mombasa
2. Mr. Francis K. Asirigwa
Director
Francis Kidula & Sons
P.O. Box 4
Maragoli
3. Mr. J. T. Gathanga
Director
J. Thairu Gathanga
P.O. Box 3592
Nairobi
4. Mr. Munyui Kahuha
Manager
Munyui Kahuha and Brothers
P.O. Box 3743
Nairobi
5. Mr. Crispus Kariuki
Manager, Imani General Contractors
P.O. Box 703
Nakuru
6. Mr. Daniel K. Kariuki
Quantity Surveyor's Clerk
Ministry of Works
P.O. Box 660
Nakuru
7. Mr. Wilfred N. Karigaca
Director
Wilfred N. Karigaca Building & Painting
P.O. Box 11442
Nairobi
8. Mr. Adam S. Kingori
Director
Adam's General Contractors Company
P.O. Box 8710
Nairobi

9. Mr. Hudson Kisala Lubang'a
Director
M/s Hamusaa Quarry Builders
P.O. Box 368
Kakamega
10. Mr. James Ligare Mulamula
Assistant Technical Instructor
Kenya Prisons Department
P.O. Box 30175
Nairobi
11. Mr. Joseph Ndungu Mungai
Director
Kirinyaga Contractors
P.O. Box 184
Thika
12. Mr. John E. Murithi
Meru Building Contractors
Box 28
Meru
13. Mr. Stephen Muthii
P.O. Box 30
Kerugoya
14. Mr. G. M. Mwangi
G. M. Builders
Nakuru
15. Mr. Ibrahim M. Mwaura
Assistant Director
Samuel Muchai Kinyanjui Building Contractor
P.O. Box 26
Eldoret
16. Mr. Joseph Kibui Ndegwa
Engineering Assistant
Ministry of Works Building Branch
Box 17
Nyeri
17. Mr. William S. Nyaga
Inspector of Works
Nairobi City Council
City Engineer's Department
Nairobi
18. Mr. Akuku J. W. Nyagar
Director
Siaya Building Company
P.O. Box 853
Kisumu

19. Mr. Apollo A. Odhiambo
Town Engineer's Department
Municipality of Kisumu
P.O. Box 105
Kisumu
20. Mr. Labani M. Odwogo
Director
North United Builders
Box 36
Maragoli
21. Mr. Fredrick Ogecha
Director
Kenya Freedom Building Contractors
P.O. Box 726
Kisumu
22. Mr. Mwoso Otuge
Managing Director
Luhanda Building and Decoration Company
P.O. Box 689
Kisumu

Uganda

1. Mr. M. M. Bunjo
Manager
Manza Bay Builders
P.O. Box 30370
Kampala
2. Mr. Ernest K. Endreku
Building Supervisor
West Nile District Administration
P.O. Box 35
Arua
3. Mr. Hassan Fadhil
Building Surveyor
National Housing Corporation
P.O. Box 659
Kampala
4. Mr. Francis Kasande
Assistant Supervisor of Works
Toro District Administration
P.O. Box 174
Fort Portal

5. Mr. S. K. Katama
Secretary
National Housing Corporation
P.O. Box 659
Kampala
6. Mr. Moses E. W. Kirumira
Proprietor
Kyaterekera Builders, Contractors
and Transport Company
P.O. Box 5720
Kampala
7. Mr. James B. Kisenyu
Managing Director
Equator Construction Company
P.O. Box 5188
Kampala
8. Mr. Ernest Kitaka
Assistant Senior Instructor
Kampiringisa Boys' School
P.O. Box 32
Mpigi
9. Mr. T. M. Kyagaba
Assistant Superintendent of Works
Busoga District Administration
P.O. Box 92
Jinja
10. Mr. Damian Makwetta
Superintendent of Works
Mbale Municipal Council
Private Bag
Mbale
11. Mr. T. Malokweza
Manager
T. Malokweza & Son Building Contractors
P.O. Box 653
Kampala
12. Mr. G. W. Mukhwana
Contractor
Elgon Contractor Services
P.O. Box 991
Mbale

13. Mr. A. K. Musoke
Manager
Uganda Modern Builders & Contractors
P.O. Box 4142
Kampala
14. Mr. D. S. Musoke
Superintendent of Works
Entebbe Town Council
P.O. Box 34
Entebbe
15. Mr. A. M. Musule
Contractor and Foreman
P.O. Box 525
Musaka
16. Mr. Zakayo Buggala Muwanga
Assistant Manager
Muganga Construction Company
P.O. Box 30191
Kampala
17. Mr. C. W. Mwasa
Superintendent of Works
Bugisu District Administration
P.O. Box 448
Mbale
18. Mr. Vinansio Obel
Proprietor
African Building Contractor
P.O. Box 74
Gulu
19. Mr. P. E. K. Olemukan
Supervisor of Works
Teso District Administration
P.O. Box 197
Scroti
20. Mr. M. Rugamba
Building Surveyor
Jinja Municipal Council
P.O. Box 659
Jinja
21. Mr. C. I. Seng'endo
Supervisor of Works
West Mingo District Administration
P.O. Box 161
Mpigi

22. Mr. Bonny Bennet Shombe
Elgon General Agencies and Traders
P.O. Box 1197
Mbale
23. Mr. John Henry K. Ssonkko
Proprietor
Muganga Construction Company
P.O. Box 1699
Kampala
24. Mr. Samuel Tar Eliba
Building Foreman
Lango District Administration
P.O. Box 49
Lira
25. Mr. G. L. Waibi
Building Maintenance Officer
National Housing Corporation
P.O. Box 659
Kampala
26. Mr. Emmanuel K. Yiga
Clerk
Roadena Limited
P.O. Box 4344
Kampala

Zambia

1. Mr. Davies Chileshe
Secretary and Treasurer
Bwacha Builders' Co-operative
P.O. Box 2684
Lusaka
2. Mr. Stanely Kabaso
P.O. Box 898
Lusaka
3. Mr. A. G. Kambikambi
Chairman
Katofyo-Mofwe Brickmaking and Building Co-operative
P.B. Katofyo, Kasumpa's Village
P. O. Kawambwa
4. Mr. K. T. Kandulu
Director
Modern Planners and Builders Co.
Box RW 248
Lusaka



5. Mr. K. M. Kweleka
Building Supervisor
Barotse Building Contractors
P.O. Box 56
Mongu
6. Mr. Raymond Loti Mofya
Chairman
Chembe Building Co-operative
P/B Mufulira
7. Mr. Andrew E. Munanko
Building Contractor
P.O. Box 25
Mpika
8. Mr. Lackson Muntanga
Secretary
Basankwa Builders' Co-operative
P.O. Box 107
Monze
9. Mr. A. M. Mwanza
Foreman
Chikokwe Builders' Co-operative
P.O. Box 13
Petauke
10. Mr. Henry Nawa
Manager
Chisokone Construction Ltd.
P.O. Box 585
Lusaka
11. Mr. Hamilton Nyirenda
Chairman
Luwerezi Building Co-operative Soc.
Emusa Sub-centre
Chief Masodi Lundazi
12. Mr. Metusalem Naphital Phiri
Secretary-Manager
Katete Building Co-operative Soc.
P.O. Box 7
Katete
13. Mr. Simon Chiutika Sakala
Manager
Sakala and Sons
P.O. Box 76
Chipata

14. Mr. Michael Siwale
Manager
M. Siwale's Construction
P.O. Box 25
Mkushi